



SEQUENCE LISTING

<110> Aventis Pharma Deutschland GmbH

<120> Process for identifying modulators of G protein coupled
receptors

<130> AVE D-2000/A033 englisch

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<160> 17

<170> PatentIn Ver. 2.1

<210> 1

<211> 1080

<212> DNA

<213> Mus musculus

<400> 1

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<212> PRT

<213> Mus musculus

<400> 2

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Glu	Leu	Lys	Leu	Leu	Leu	Leu	Gly	Thr	Gly	Glu	Ser	Gly	Lys	Ser	Thr	35	40	45	
Phe	Ile	Lys	Gln	Met	Arg	Ile	Ile	His	Gly	Ser	Gly	Tyr	Ser	Asp	Glu	50	55	60	
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Leu	Trp	Asn	Asp	Pro	Gly	Ile	Gln	Glu	Cys	Tyr	Asp	Arg	Arg	Arg	Glu	130	135	140	
Tyr	Gln	Leu	Ser	Asp	Ser	Thr	Lys	Tyr	Tyr	Leu	Asn	Asp	Leu	Asp	Arg	145	150	155	160
Val	Ala	Asp	Pro	Ala	Tyr	Leu	Pro	Thr	Gln	Gln	Asp	Val	Leu	Arg	Val	165	170	175	
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Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu	Arg	Arg	195	200	205	
Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe	Leu	Val	210	215	220	
Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Ser	Asp	Asn	Glu	Asn	225	230	235	240
Arg	Met	Glu	Glu	Ser	Lys	Ala	Leu	Phe	Arg	Thr	Ile	Ile	Thr	Tyr	Pro	245	250	255	

Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
260 265 270

Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
275 280 285

Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Ala Arg Glu Phe Ile Leu
290 295 300

Lys Met Phe Val Asp Leu Asn Pro Asp Ser Asp Lys Ile Ile Tyr Ser
305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Cys Gly Leu
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Phe

<210> 3

<211> 1062

<212> DNA

<213> Mus musculus

<400> 3

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gaattcattc tgaagatgtt cgtggacctg aaccagaca gtgacaaaat tatctactcc 960
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35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
50 55 60

Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
65 70 75 80

Met Gln Ala Met Ile Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys
85 90 95

Tyr Glu His Asn Lys Ala His Ala Gln Leu Val Arg Glu Val Asp Val
100 105 110

Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr Val Asp Ala Ile Lys Ser
115 120 125

Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
130 135 140

Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr Leu Asn Asp Leu Asp Arg
145 150 155 160

Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln Gln Asp Val Leu Arg Val
165 170 175

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Gln Ser
180 185 190

Val Ile Phe Arg Met Val Asp Val Gly Gly Gln Arg Ser Glu Arg Arg
195 200 205

Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val
210 215 220

Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn Glu Asn
 225 230 235 240

Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
 245 250 255

Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
 260 265 270

Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
 275 280 285

Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Ala Arg Glu Phe Ile Leu
 290 295 300

Lys Met Phe Val Asp Leu Asn Pro Asp Ser Asp Lys Ile Ile Tyr Ser
 305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
 325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Gln Tyr Glu Leu
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<212> DNA

<213> Mus musculus

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<212> PRT

<213> Mus musculus

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Asp Glu Ile Glu Arg His Val Arg Arg Asp Lys Arg Asp Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
 50 55 60

Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
 65 70 75 80

Met Gln Ala Met Ile Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys
 85 90 95

Tyr Glu His Asn Lys Ala His Ala Gln Leu Val Arg Glu Val Asp Val
 100 105 110

Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr Val Asp Ala Ile Lys Ser
 115 120 125

Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140

Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr Leu Asn Asp Leu Asp Arg
 145 150 155 160

Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln Gln Asp Val Leu Arg Val
 165 170 175

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Gln Ser

180					185					190						
Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu	Arg	Arg	
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Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe	Leu	Val	
210					215					220						
Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Ser	Asp	Asn	Glu	Asn	
225					230					235					240	
Arg	Met	Glu	Glu	Ser	Lys	Ala	Leu	Phe	Arg	Thr	Ile	Ile	Thr	Tyr	Pro	
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Phe

<210> 7

<211> 1062

<212> DNA

<213> Mus musculus

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<210> 8

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<212> PRT

<213> Mus musculus

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```

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
      35              40              45

```

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Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
      50              55              60

```

```

Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
      65              70              75              80

```

```

Met Gln Ala Met Ile Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys
      85              90              95

```

```

Tyr Glu His Asn Lys Ala His Ala Gln Leu Val Arg Glu Val Asp Val
      100             105             110

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```

Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr Val Asp Ala Ile Lys Ser
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Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
      130             135             140

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Val	Ala	Asp	Pro	Ala	Tyr	Leu	Pro	Thr	Gln	Gln	Asp	Val	Leu	Arg	Val	165	170	175	
Arg	Val	Pro	Thr	Thr	Gly	Ile	Ile	Glu	Tyr	Pro	Phe	Asp	Leu	Gln	Ser	180	185	190	
Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu	Arg	Arg	195	200	205	
Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe	Leu	Val	210	215	220	
Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Ser	Asp	Asn	Glu	Asn	225	230	235	240
Arg	Met	Glu	Glu	Ser	Lys	Ala	Leu	Phe	Arg	Thr	Ile	Ile	Thr	Tyr	Pro	245	250	255	
Trp	Phe	Gln	Asn	Ser	Ser	Val	Ile	Leu	Phe	Leu	Asn	Lys	Lys	Asp	Leu	260	265	270	
Leu	Glu	Glu	Lys	Ile	Met	Tyr	Ser	His	Leu	Val	Asp	Tyr	Phe	Pro	Glu	275	280	285	
Tyr	Asp	Gly	Pro	Gln	Arg	Asp	Ala	Gln	Ala	Ala	Arg	Glu	Phe	Ile	Leu	290	295	300	
Lys	Met	Phe	Val	Asp	Leu	Asn	Pro	Asp	Ser	Asp	Lys	Ile	Ile	Tyr	Ser	305	310	315	320
His	Phe	Thr	Cys	Ala	Thr	Asp	Thr	Glu	Asn	Ile	Arg	Phe	Val	Phe	Ala	325	330	335	
Ala	Val	Lys	Asp	Thr	Ile	Leu	Gln	Leu	Asn	Leu	Lys	Gln	Tyr	Glu	Leu	340	345	350	
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<210> 9

<211> 1128

<212> DNA

<213> Mus musculus

<400> 9

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<213> Mus musculus

<400> 10

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```

```
Leu Glu Gln Lys Lys Gln Asp Arg Gly Glu Leu Lys Leu Leu Leu Leu
      35              40              45
```

```
Gly Pro Gly Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile
      50              55              60
```

```
Ile His Gly Ala Gly Tyr Ser Glu Glu Glu Arg Lys Gly Phe Arg Pro
      65              70              75              80
```

```
Leu Val Tyr Gln Asn Ile Phe Val Ser Met Arg Ala Met Ile Glu Ala
          85              90              95
```

```
Met Glu Arg Leu Gln Ile Pro Phe Ser Arg Pro Glu Ser Lys His His
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100								105				110																		
Ala	Ser	Leu	Val	Met	Ser	Gln	Asp	Pro	Tyr	Lys	Val	Thr	Thr	Phe	Glu															
		115					120						125																	
Lys	Arg	Tyr	Ala	Ala	Ala	Met	Gln	Trp	Leu	Trp	Arg	Asp	Ala	Gly	Ile															
		130				135						140																		
Arg	Ala	Cys	Tyr	Glu	Arg	Arg	Arg	Glu	Phe	His	Leu	Leu	Asp	Ser	Ala															
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Val	Tyr	Tyr	Leu	Ser	His	Leu	Glu	Arg	Ile	Thr	Glu	Glu	Gly	Tyr	Val															
				165					170					175																
Pro	Thr	Ala	Gln	Asp	Val	Leu	Arg	Ser	Arg	Met	Pro	Thr	Thr	Gly	Ile															
			180					185					190																	
Asn	Glu	Tyr	Cys	Phe	Ser	Val	Gln	Lys	Thr	Asn	Leu	Arg	Ile	Val	Asp															
		195					200					205																		
Val	Gly	Gly	Gln	Lys	Ser	Glu	Arg	Lys	Lys	Trp	Ile	His	Cys	Phe	Glu															
		210				215					220																			
Asn	Val	Ile	Ala	Leu	Ile	Tyr	Leu	Ala	Ser	Leu	Ser	Glu	Tyr	Asp	Gln															
		225				230				235					240															
Cys	Leu	Glu	Glu	Asn	Asn	Gln	Glu	Asn	Arg	Met	Lys	Glu	Ser	Leu	Ala															
				245				250					255																	
Leu	Phe	Gly	Thr	Ile	Leu	Glu	Leu	Pro	Trp	Phe	Lys	Ser	Thr	Ser	Val															
			260					265					270																	
Ile	Leu	Phe	Leu	Asn	Lys	Thr	Asp	Ile	Leu	Glu	Glu	Lys	Ile	Pro	Thr															
		275					280					285																		
Ser	His	Leu	Ala	Thr	Tyr	Phe	Pro	Ser	Phe	Gln	Gly	Pro	Lys	Gln	Asp															
		290				295					300																			
Ala	Glu	Ala	Ala	Lys	Arg	Phe	Ile	Leu	Asp	Met	Tyr	Thr	Arg	Met	Tyr															
		305				310				315					320															
Thr	Gly	Cys	Val	Asp	Gly	Pro	Glu	Gly	Ser	Lys	Lys	Gly	Ala	Arg	Ser															
				325				330					335																	
Arg	Arg	Leu	Phe	Ser	His	Tyr	Thr	Cys	Ala	Thr	Asp	Thr	Gln	Asn	Ile															
			340					345					350																	
Arg	Lys	Val	Phe	Lys	Asp	Val	Arg	Asp	Ser	Val	Leu	Ala	Arg	Tyr	Leu															

355

360

365

Asp Glu Ile Asn Leu Leu
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<210> 11

<211> 359

<212> PRT

<213> Mus musculus

<400> 11

Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu Ser Glu Glu Ala Lys
1 5 10 15

Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg His Val Arg Arg Asp
20 25 30

Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly
35 40 45

Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly
50 55 60

Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr
65 70 75 80

Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr
85 90 95

Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu
100 105 110

Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr
115 120 125

Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys
130 135 140

Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr
145 150 155 160

Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln
165 170 175

Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr
180 185 190

Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly
 195 200 205

Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr
 210 215 220

Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val
 225 230 235 240

Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg
 245 250 255

Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe
 260 265 270

Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu
 275 280 285

Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala
 290 295 300

Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser
 305 310 315 320

Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn
 325 330 335

Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn
 340 345 350

Leu Lys Glu Tyr Asn Leu Val
 355

<210> 12

<211> 353

<212> PRT

<213> Mus musculus

<400> 12

Met Ala Cys Cys Leu Ser Glu Glu Ala Lys Glu Ala Arg Arg Ile Asn
 1 5 10 15

Asp Glu Ile Glu Arg His Val Arg Arg Asp Lys Arg Asp Ala Arg Arg
 20 25 30

Glu	Leu	Lys	Leu	Leu	Leu	Leu	Gly	Thr	Gly	Glu	Ser	Gly	Lys	Ser	Thr	35	40	45	
Phe	Ile	Lys	Gln	Met	Arg	Ile	Ile	His	Gly	Ser	Gly	Tyr	Ser	Asp	Glu	50	55	60	
Asp	Lys	Arg	Gly	Phe	Thr	Lys	Leu	Val	Tyr	Gln	Asn	Ile	Phe	Thr	Ala	65	70	75	80
Met	Gln	Ala	Met	Ile	Arg	Ala	Met	Asp	Thr	Leu	Lys	Ile	Pro	Tyr	Lys	85	90	95	
Tyr	Glu	His	Asn	Lys	Ala	His	Ala	Gln	Leu	Val	Arg	Glu	Val	Asp	Val	100	105	110	
Glu	Lys	Val	Ser	Ala	Phe	Glu	Asn	Pro	Tyr	Val	Asp	Ala	Ile	Lys	Ser	115	120	125	
Leu	Trp	Asn	Asp	Pro	Gly	Ile	Gln	Glu	Cys	Tyr	Asp	Arg	Arg	Arg	Glu	130	135	140	
Tyr	Gln	Leu	Ser	Asp	Ser	Thr	Lys	Tyr	Tyr	Leu	Asn	Asp	Leu	Asp	Arg	145	150	155	160
Val	Ala	Asp	Pro	Ala	Tyr	Leu	Pro	Thr	Gln	Gln	Asp	Val	Leu	Arg	Val	165	170	175	
Arg	Val	Pro	Thr	Thr	Gly	Ile	Ile	Glu	Tyr	Pro	Phe	Asp	Leu	Gln	Ser	180	185	190	
Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu	Arg	Arg	195	200	205	
Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe	Leu	Val	210	215	220	
Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Ser	Asp	Asn	Glu	Asn	225	230	235	240
Arg	Met	Glu	Glu	Ser	Lys	Ala	Leu	Phe	Arg	Thr	Ile	Ile	Thr	Tyr	Pro	245	250	255	
Trp	Phe	Gln	Asn	Ser	Ser	Val	Ile	Leu	Phe	Leu	Asn	Lys	Lys	Asp	Leu	260	265	270	
Leu	Glu	Glu	Lys	Ile	Met	Tyr	Ser	His	Leu	Val	Asp	Tyr	Phe	Pro	Glu	275	280	285	

Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Ala Arg Glu Phe Ile Leu
 290 295 300

Lys Met Phe Val Asp Leu Asn Pro Asp Ser Asp Lys Ile Ile Tyr Ser
 305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
 325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
 340 345 350

Val

<210> 13

<211> 359

<212> PRT

<213> Mus musculus

<400> 13

Met Thr Leu Glu Ser Met Met Ala Cys Cys Leu Ser Asp Glu Val Lys
 1 5 10 15

Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg His Val Arg Arg Asp
 20 25 30

Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly
 35 40 45

Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly
 50 55 60

Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr
 65 70 75 80

Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr
 85 90 95

Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu
 100 105 110

Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr
 115 120 125

Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys

130	135	140
Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr		
145	150	155 160
Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln		
	165	170 175
Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr		
	180	185 190
Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly		
	195	200 205
Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr		
	210	215 220
Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val		
	225	230 235 240
Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg		
	245	250 255
Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe		
	260	265 270
Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu		
	275	280 285
Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala		
	290	295 300
Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser		
	305	310 315 320
Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn		
	325	330 335
Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn		
	340	345 350
Leu Lys Glu Tyr Asn Leu Val		
	355	

<210> 14

<211> 353

<212> PRT

<213> Mus musculus

<400> 14

Met	Gly	Cys	Thr	Leu	Ser	Ala	Glu	Asp	Lys	Glu	Ala	Arg	Arg	Ile	Asn	
1				5					10					15		
Asp	Glu	Ile	Glu	Arg	His	Val	Arg	Arg	Asp	Lys	Arg	Asp	Ala	Arg	Arg	
			20					25					30			
Glu	Leu	Lys	Leu	Leu	Leu	Leu	Gly	Thr	Gly	Glu	Ser	Gly	Lys	Ser	Thr	
		35					40					45				
Phe	Ile	Lys	Gln	Met	Arg	Ile	Ile	His	Gly	Ser	Gly	Tyr	Ser	Asp	Glu	
	50					55					60					
Asp	Lys	Arg	Gly	Phe	Thr	Lys	Leu	Val	Tyr	Gln	Asn	Ile	Phe	Thr	Ala	
65					70					75					80	
Met	Gln	Ala	Met	Ile	Arg	Ala	Met	Asp	Thr	Leu	Lys	Ile	Pro	Tyr	Lys	
				85					90						95	
Tyr	Glu	His	Asn	Lys	Ala	His	Ala	Gln	Leu	Val	Arg	Glu	Val	Asp	Val	
			100					105					110			
Glu	Lys	Val	Ser	Ala	Phe	Glu	Asn	Pro	Tyr	Val	Asp	Ala	Ile	Lys	Ser	
		115					120					125				
Leu	Trp	Asn	Asp	Pro	Gly	Ile	Gln	Glu	Cys	Tyr	Asp	Arg	Arg	Arg	Glu	
	130					135						140				
Tyr	Gln	Leu	Ser	Asp	Ser	Thr	Lys	Tyr	Tyr	Leu	Asn	Asp	Leu	Asp	Arg	
145					150					155					160	
Val	Ala	Asp	Pro	Ala	Tyr	Leu	Pro	Thr	Gln	Gln	Asp	Val	Leu	Arg	Val	
				165					170					175		
Arg	Val	Pro	Thr	Thr	Gly	Ile	Ile	Glu	Tyr	Pro	Phe	Asp	Leu	Gln	Ser	
			180					185						190		
Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu	Arg	Arg	
		195					200					205				
Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe	Leu	Val	
	210					215					220					
Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Ser	Asp	Asn	Glu	Asn	
225					230					235				240		

Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr Pro
245 250 255

Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp Leu
260 265 270

Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu
275 280 285

Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Ala Arg Glu Phe Ile Leu
290 295 300

Lys Met Phe Val Asp Leu Asn Pro Asp Ser Asp Lys Ile Ile Tyr Ser
305 310 315 320

His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe Ala
325 330 335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
340 345 350

Val

<210> 15

<211> 353

<212> PRT

<213> Mus musculus

<400> 15

Met Gly Cys Thr Leu Ser Ala Glu Glu Arg Glu Ala Arg Arg Ile Asn
1 5 10 15

Asp Glu Ile Glu Arg His Val Arg Arg Asp Lys Arg Asp Ala Arg Arg
20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
50 55 60

Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
65 70 75 80

Met	Gln	Ala	Met	Ile	Arg	Ala	Met	Asp	Thr	Leu	Lys	Ile	Pro	Tyr	Lys	85	90	95
Tyr	Glu	His	Asn	Lys	Ala	His	Ala	Gln	Leu	Val	Arg	Glu	Val	Asp	Val	100	105	110
Glu	Lys	Val	Ser	Ala	Phe	Glu	Asn	Pro	Tyr	Val	Asp	Ala	Ile	Lys	Ser	115	120	125
Leu	Trp	Asn	Asp	Pro	Gly	Ile	Gln	Glu	Cys	Tyr	Asp	Arg	Arg	Arg	Glu	130	135	140
Tyr	Gln	Leu	Ser	Asp	Ser	Thr	Lys	Tyr	Tyr	Leu	Asn	Asp	Leu	Asp	Arg	145	150	155
Val	Ala	Asp	Pro	Ala	Tyr	Leu	Pro	Thr	Gln	Gln	Asp	Val	Leu	Arg	Val	165	170	175
Arg	Val	Pro	Thr	Thr	Gly	Ile	Ile	Glu	Tyr	Pro	Phe	Asp	Leu	Gln	Ser	180	185	190
Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu	Arg	Arg	195	200	205
Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe	Leu	Val	210	215	220
Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Ser	Asp	Asn	Glu	Asn	225	230	235
Arg	Met	Glu	Glu	Ser	Lys	Ala	Leu	Phe	Arg	Thr	Ile	Ile	Thr	Tyr	Pro	245	250	255
Trp	Phe	Gln	Asn	Ser	Ser	Val	Ile	Leu	Phe	Leu	Asn	Lys	Lys	Asp	Leu	260	265	270
Leu	Glu	Glu	Lys	Ile	Met	Tyr	Ser	His	Leu	Val	Asp	Tyr	Phe	Pro	Glu	275	280	285
Tyr	Asp	Gly	Pro	Gln	Arg	Asp	Ala	Gln	Ala	Ala	Arg	Glu	Phe	Ile	Leu	290	295	300
Lys	Met	Phe	Val	Asp	Leu	Asn	Pro	Asp	Ser	Asp	Lys	Ile	Ile	Tyr	Ser	305	310	315
His	Phe	Thr	Cys	Ala	Thr	Asp	Thr	Glu	Asn	Ile	Arg	Phe	Val	Phe	Ala	325	330	335

Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Glu Tyr Asn Leu
 340 345 350

Val

<210> 16

<211> 353

<212> PRT

<213> Mus musculus

<400> 16

Met Gly Ala Gly Ala Ser Ala Glu Glu Lys Glu Ala Arg Arg Ile Asn
 1 5 10 15

Asp Glu Ile Glu Arg His Val Arg Arg Asp Lys Arg Asp Ala Arg Arg
 20 25 30

Glu Leu Lys Leu Leu Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr
 35 40 45

Phe Ile Lys Gln Met Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu
 50 55 60

Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala
 65 70 75 80

Met Gln Ala Met Ile Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys
 85 90 95

Tyr Glu His Asn Lys Ala His Ala Gln Leu Val Arg Glu Val Asp Val
 100 105 110

Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr Val Asp Ala Ile Lys Ser
 115 120 125

Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys Tyr Asp Arg Arg Arg Glu
 130 135 140

Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr Leu Asn Asp Leu Asp Arg
 145 150 155 160

Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln Gln Asp Val Leu Arg Val
 165 170 175

Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Gln Ser

180					185					190						
Val	Ile	Phe	Arg	Met	Val	Asp	Val	Gly	Gly	Gln	Arg	Ser	Glu	Arg	Arg	
195					200					205						
Lys	Trp	Ile	His	Cys	Phe	Glu	Asn	Val	Thr	Ser	Ile	Met	Phe	Leu	Val	
210					215					220						
Ala	Leu	Ser	Glu	Tyr	Asp	Gln	Val	Leu	Val	Glu	Ser	Asp	Asn	Glu	Asn	
225					230					235					240	
Arg	Met	Glu	Glu	Ser	Lys	Ala	Leu	Phe	Arg	Thr	Ile	Ile	Thr	Tyr	Pro	
245					250					255						
Trp	Phe	Gln	Asn	Ser	Ser	Val	Ile	Leu	Phe	Leu	Asn	Lys	Lys	Asp	Leu	
260					265					270						
Leu	Glu	Glu	Lys	Ile	Met	Tyr	Ser	His	Leu	Val	Asp	Tyr	Phe	Pro	Glu	
275					280					285						
Tyr	Asp	Gly	Pro	Gln	Arg	Asp	Ala	Gln	Ala	Ala	Arg	Glu	Phe	Ile	Leu	
290					295					300						
Lys	Met	Phe	Val	Asp	Leu	Asn	Pro	Asp	Ser	Asp	Lys	Ile	Ile	Tyr	Ser	
305					310					315					320	
His	Phe	Thr	Cys	Ala	Thr	Asp	Thr	Glu	Asn	Ile	Arg	Phe	Val	Phe	Ala	
325					330					335						
Ala	Val	Lys	Asp	Thr	Ile	Leu	Gln	Leu	Asn	Leu	Lys	Glu	Tyr	Asn	Leu	
340					345					350						

Val

<210> 17

<211> 360

<212> PRT

<213> Mus musculus

<400> 17

Met	Gly	Cys	Leu	Gly	Asn	Ser	Lys	Thr	Glu	Asp	Gln	Arg	Asn	Glu	Glu
1				5					10					15	

Lys	Glu	Ala	Arg	Arg	Ile	Asn	Asp	Glu	Ile	Glu	Arg	His	Val	Arg	Arg
			20					25					30		

Asp Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Leu Gly Thr
 35 40 45
 Gly Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His
 50 55 60
 Gly Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val
 65 70 75 80
 Tyr Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp
 85 90 95
 Thr Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln
 100 105 110
 Leu Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro
 115 120 125
 Tyr Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu
 130 135 140
 Cys Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr
 145 150 155 160
 Tyr Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ala Tyr Leu Pro Thr
 165 170 175
 Gln Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu
 180 185 190
 Tyr Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly
 195 200 205
 Gly Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys Phe Glu Asn Val
 210 215 220
 Thr Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr Asp Gln Val Leu
 225 230 235 240
 Val Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe
 245 250 255
 Arg Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu
 260 265 270
 Phe Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His
 275 280 285

Leu Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln
290 295 300

Ala Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp
305 310 315 320

Ser Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu
325 330 335

Asn Ile Arg Phe Val Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu
340 345 350

Asn Leu Lys Glu Tyr Asn Leu Val
355 360